

2/10/17 "An eye for an eye only ends up making the whole world blind."-Gandhi

HW: "More Practice with Vertex Form of a Parabola" #1-15 odd  
Test 1 on Thursday 2/16

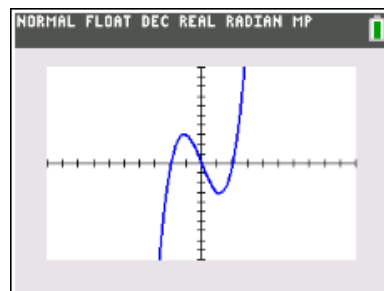
AIM: What is the vertex form of a Parabola?

Warm Up:

1) Determine if the following function is even, odd, or neither.

$$g(x) = x^3 - 4x.$$

odd



Place each of the following quadratic functions in vertex form and identify the turning point.

⊗ Vertex Form:

1.  $y = x^2 - 8x + 18.$

$$y = x^2 - 8x + \boxed{16} + 18 - \boxed{16}$$

$$y = (x-h)^2 + k$$

vertex:  $(h, k)$

$$\begin{aligned} \frac{-8}{2} &= -4 \\ (-4)^2 &= 16 \end{aligned} \quad y = (x-4)^2 + 2$$

vertex:  $(4, 2)$

2.  $y = 3x^2 + 12x - 2$

$$y = 3(x^2 + 4x + \boxed{4}) - 2 - \boxed{3(4)}$$

$-12$

$$\frac{4}{2} = 2$$

$$2^2 = 4$$

$$y = 3(x + 2)^2 - 14$$

$$\text{Vertex: } (-2, -14)$$

3.  $y = 2x^2 + 6x + 1$

$$y = 2(x^2 + 3x + \boxed{\frac{9}{4}}) + 1 - \boxed{2(\frac{9}{4})}$$

$\frac{18}{4}$

$$\left(\frac{3}{2}\right)^2 = \frac{9}{4}$$

$$y = 2\left(x + \frac{3}{2}\right)^2 - \frac{7}{2}$$

$$\text{Vertex: } \left(-\frac{3}{2}, -\frac{7}{2}\right)$$

